

## **COMPLEX TYPE TOOTHBRUSH**

### **BACKGROUND OF THE INVENTION**

#### **1. Field of the Invention:**

The present invention relates to a complex type toothbrush and, particularly, to  
5 a toothbrush provided with a rotary brush head in addition to a conventional fixed type  
brush head.

#### **2. Description of Related Art:**

It is known that the oral cavity hygiene influences our body health very much.  
In fact, it is absolutely advantageous for us to eat food or take nutrition. Contrarily,  
10 incomplete teeth or ill teeth are hard for us to eat different kinds of food smoothly.

Good teeth are essentially from health care and especially it is necessary to  
have a good habit of teeth brushing. It is realized that the traditional toothbrush has  
fixed brush head, i.e., the part with brush hairs and the user has to move the  
toothbrush up and down in order to clean the food residue or the tartar staining on the  
15 teeth. However, the food residue left in slits between teeth is incapable removed with  
the traditional toothbrush. Hence, a good and effective toothbrush is much helpful for  
cleaning the food residue staying between teeth in addition to a good habit of teeth  
brushing.

According, electric toothbrush was developed to overcome the preceding  
20 shortcoming but an ordinary electric toothbrush needs electric power and motor with  
eccentric device so that it becomes heavy and large. In addition, the electric  
toothbrush is more expensive and it is necessary to be charge in case of power  
exhaust. Hence, it is not so perfect as we expect.

### **SUMMARY OF THE INVENTION**

The crux of the present invention is to provide a complex type toothbrush, which includes a push handle, a base, a brush seat and a rotary brush part. The push handle provides a brush handle part joining a push stem with an elongated push groove at the push stem. The base is surrounded with a base edge to form an open top base chamber and is provides a base hole. The brush seat at both ends thereof has a hair seat respectively with each hair seat being attached with brush hairs and at the middle thereof has a circular seat recess with a central brush hole. The rotary brush part provides a rotary brush head with brush hairs at the seat recess and being joined to the push stem for being rotated in a right direction or a reversed direction about an axis of the base hole during the push stem being moved forward or backward.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The present invention can be more fully understood by reference to the following description and accompanying drawings, in which:

Fig. 1 is an exploded perspective view of a complex type toothbrush according to a preferred embodiment of the present invention;

Fig. 2 is a perspective view of the complex type toothbrush shown in Fig. 1;

Fig. 3 is a sectional view of the complex type toothbrush shown in Fig. 2;

Fig. 4 is an exploded perspective view of a complex type toothbrush according to another preferred embodiment of the present invention; and

Fig. 5 is a sectional view of the complex type toothbrush shown in Fig. 4.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to Figs. 1 and 2, a complex type toothbrush of the present invention includes a push handle 1, a base 2, a brush seat 3 and a rotational brush part 4.

Wherein, the push handle 1 has a brush handle part 11 and a push stem 12 connected to the front end of the brush handle 11. The push stem 12 can be made integrally with the brush handle 11 can engage with the brush handle part 11 by way of holes fitting with tenons as shown in Fig. 1. Because these are conventional art so that no detail will be described further. The push stem 12 at the front end thereof is provided with an elongated push groove 121 and a side recess 122 as shown in Fig. 1. The push stem 12 is flat so as to be received in the base 2.

The base 2 has a base bottom 21 and a base edge 22 extending vertically surrounding the base 2 to form a semi-closed space and constitute a base chamber 23 so that the push stem 12 can be received in the base chamber 23. Therefore, a base recess 24 is provided at an end of the base 2 facing the front end of the brush handle 11. In the mean time, the base 2 at both lateral sides thereof has a baffle 25 respectively. Besides, the base bottom 21 at the central area thereof can hunch up to form a base ridge 26 with a blind base hole 27 (not shown because of the projection angle).

The brush seat 3 is solid provides a size corresponding to the base chamber 23 so that the brush seat 3 can be received in the base chamber 23. The brush seat 3 at both ends thereof has a hair seat 31 respectively and the hair seat 31 is attached with multiple brush hairs 32 and at the middle thereof has a right downward circular seat recess 33 with a central brush hole 34. In order to fit with the base 2, the hair seats 31 at the outer wall thereof has a reduced insert part 35.

The rotational brush part 4 is composed of a rotary brush head 41 and a rotary rod 42. The rotary brush head 41 further is composed of a conventional base body and brush hairs. The base body at the bottom thereof has a central fitting hole 411 (not shown because of the projection angle) and the rotary rod 42 has a crank head 421 extending outward to pierce the fitting hole 411 and a crank arm 422, which is at an end of the crank head 421, is perpendicular to the crank head 421. The crank arm

422 has a size corresponding to the side recess 122 so as to be inserted in the side recess 122. Further, the end next to the crank arm 422 extends a crank core 423 so as to be inserted into the brush hole 34.

Referring to Fig. 2 again, the push stem 12 of the push handle 1 is inserted into the base chamber 23 from the base recess 24 during the complex type toothbrush of the present invention being assembled. The crank core 423 of the rotary crank 42 passes through the push groove 121 and the crank arm 422 is inserted into the side recess 122. The brush seat 3 is fixedly attached to the base 2 and the crank head 421 passes through the brush hole 34 and is inserted into the fitting hole 411 of the rotary brush head 41. Hence, the parts of the toothbrush can be assembled completely as shown in Fig. 2.

Referring to Fig. 3, it can be seen from the sectional view that friction or resistance between the brush hairs and teeth of a user can be produced while the toothbrush of the present invention is used. Thus, the moving forward or backward push force actuates the push stem 12 to move forward. Right at the moment, the push groove 121 rotates the rotary crank 42 and allows the push stem 12 to move forward so as to rotate the rotary brush head 41 and vice versa. In this way, the toothbrush of the present invention can be performed with a hand and the brush hairs can be fixed in place through mechanical transmission design. In addition, the rotary brush hairs are provided to secure the motion of toothbrush and enhance the function thereof.

Referring to Figs. 4 and 5, another embodiment of the present invention is illustrated. It can be seen that a gear set is adopted and the side recess 122 provided in the previous embodiment is not used. An elongated opening with two circular ends and a section of rack 123 being at the side wall of the opening is provided and a gear 424 is mounted to mesh with the rack instead of the crank arm 422. In this way, the same effect as the previous embodiment can be obtained as well.

It is appreciated that the complex type toothbrush of the present invention has a rotary brush part 4, which can rotate with respect to the push handle being moved, in addition to the conventional hand moved brush hair part. Hence, dual functions can be performed effectively and it is incapable of being done by the conventional  
5 toothbrush.

While the invention has been described with reference to preferred embodiments thereof, it is to be understood that modifications or variations may be easily made without departing from the spirit of this invention, which is defined by the appended claims.